ABSTRACT

An element is deposited by flowing a gas through a solid donor compound that includes the element, and over a substrate. The flow of gas deposits a film of a few monolayers of donor compound on the substrate. An optical radiation source (e.g., a femtosecond laser) which produces optical radiation at an instantaneous intensity sufficient to cause non linear or otherwise enhanced interaction between optical radiation photons and the donor compound is used to decompose the donor compound and deposit the metal on the substrate. After an initial deposit of the donor compound is produced, optical radiation can be absorbed and heat the substrate in the localized area of the deposit in order to accelerate the deposition process by thermally decomposing the donor compound.

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